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THE INSECT PEST SURVEY
BULLETIN

A periodical review of entomological conditions throughout the United States
issued on the first of each month from March to November, inclusive

Volume 6

Summary for 1926

Number 10

BUREAU OF ENTOMOLOGY
UNITED STATES
DEPARTMENT OF AGRICULTURE
AND
THE STATE ENTOMOLOGICAL
AGENCIES COOPERATING

INTRODUCTION

A summary of the insect conditions for the year 1921 was published as a Departmental Bulletin (U. S. D. A. Bulletin 1103). It was proposed at that time to make this an annual feature, but owing to the rapid growth of the survey work it was found impracticable to continue this feature. The demand, however, for this type of annual summary makes it desirable that each year's entomological activities be reviewed by the Survey. We feel that the present departure in issuing a 10th number to the annual volume of the Insect Pest Survey will meet this requirement most satisfactorily.

No considerable space was devoted to those introduced insects which are the subjects of special investigations, as these are covered in annual summaries from the offices in charge of these activities.

GENERAL PESTS

The most striking entomological feature of the year 1926 was the widespread and destructive abundance of several species of cutworms. The late spring was very probably responsible for the continued depredations of these insects. The army cutworm (Chorizagrotis auxiliaris Grote) appeared in destructive numbers in March in parts of Kansas, Nebraska, and Oklahoma. During April this cutworm did very considerable damage to wheat and alfalfa. Similar reports of injury by cutworms early in the season were received from the southeastern and Gulf States. In May a very unusual outbreak of the variegated cutworm (Lycophotia margaritosa var. saucia Hbn.) was reported from the Gulf region of Mississippi and Texas. Depredations of cutworms continued throughout early June, particularly in the Ohio and upper Mississippi River Valleys, and the damage extended into early July, when the red-backed cutworm (Euxoa ochrogaster Gn.), the pale western cutworm (Porosagrotis orthogonia Morr.), the early cutworm (Euxoa tristicula Morr.), and Euxoa excellens Grt., were reported as the most important insects of the season in Saskatchewan, Alberta, British Columbia, Manitoba, and southern Ontario.

CEREAL AND FORAGE CROP INSECTS

The late fall and winter surveys of 1925-26 indicated that the Hessian fly was at a very low stage of its abundance in the Middle Atlantic and South-Central States, as well as in the Lake region, with the possible exception of Illinois. This low ebb seemed to extend southward through Missouri and westward to Nebraska and South Dakota. The situation in Kansas, however, appeared much more critical, while on the Pacific Coast the conditions of the East were repeated. As the season advanced the forecast was, in general, borne out, but little commercial damage being reported from any part of the wheat belt except Kansas. During July, however, the fly was observed to be decidedly

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more abundant in west-central Ohio and the northern two-thirds of Indiana. The fall surveys indicate that it has increased from 1.5 per cent in 1925 to 3.6 per cent in 1926 in New York State and from 7.5 per cent to 8.8 per cent in Ohio; but in Illinois the fall surveys indicate a decrease in the abundance of this insect. In general, the fly is not appearing in threatening numbers east of Kansas. A rather unusual situation developed in Pennsylvania, where the flies in volunteer wheat emerged this fall, infesting grain sown after the fly-free date. Usually these flies do not emerge until the following spring. Another interesting development of the year was the discovery of this pest on the east coast of New Brunswick, in Northumberland County, about 100 miles from the St. Johns River Valley.

Brood "A" of white grubs emerged as prognosticated. Heavy flights were observed during May in southern Illinois, parts of Indiana, Iowa, Missouri, Kansas and Mississippi. The larvae of these insects were in general less prevalent and destructive than usual in the United States, but in southern Ontario the damage caused by them seems to have materially increased over that in 1925.

The chinch bug passed the winter with slight mortality. During May it was reported as unusually abundant in central and south-central Illinois and in parts of Kansas. The outbreak in Mississippi reported last year does not seem to have abated. In general, however, damage by the chinch bug was not serious, although scattered outbreaks were reported from Mississippi, and rather intense infestations from southeastern and southern Nebraska, parts of Kansas, and central Missouri. Owing to the lateness of the season the movement of the chinch bug from small grain to corn was delayed until early in July. At that time the situation seemed rather serious in the Ohio River Valley and westward to Nebraska and Kansas. Heavy rains in the East, however, materially checked this insect, and present indications are that in the Ohio River Valley it will go into hibernation in materially reduced numbers; in the part of the chinch bug belt west of the Mississippi River it will in all probability enter the winter in large numbers.

The green bug (Toxoptera graminum Rond.) appeared in March in only small and localized areas in the southern part of its range; small areas were found infested near Sherman and Rochelle, Tex. Early in April a single outbreak was reported from Logan County, Okla. In the northern part of its range, however, in Ohio, Indiana, Michigan, Minnesota, South Dakota, Wisconsin, and Iowa, it appeared in rather conspicuous numbers, but the damage except in Minnesota was not serious.

Grasshoppers in general were not in 1926 unusually abundant in the United States. In British Columbia, however, serious outbreaks occurred, particularly in the Peace River and Chilcotin districts.

Wireworms (Elateridae) were reported from many scattering localities. No unusually serious damage, however, was recorded from the United States. In the Provinces of Saskatchewan and Alberta these insects have since 1923 continued to increase in both numbers and importance as crop pests.

The European corn borer (Pyrausta nubilalis Hbn.) in its originally

infested area in New York State has increased 300 per cent in intensity over the population records of 1924. The total area found to be infested by it has during the season almost doubled and now extends westward to Berrien County, Mich., and Noble County, Ind. One corn borer was found just over the Indiana-Illinois line in Kankakee County, Ill.

The fall armyworm (Laphygma frugiperda S. & A.) was more or less destructive throughout the season. Reports of heavy damage have been received from South Carolina, Georgia, Mississippi, and southern Louisiana.

The corn ear worm (Heliothis obsoleta Fab.) was decidedly troublesome over the greater part of the country. Exceptional damage has been reported from North Carolina, South Carolina, Georgia, Alabama, Iowa, Nebraska, Kansas, Indiana, Illinois, and Missouri. Corn suffered the major damage, as usual, but in the peach belt of Georgia the entire crop of peaches on a 4,000-tree plantation was destroyed.

Slight and unimportant outbreaks of the armyworm (Cirphis unipuncta Haw.) were recorded from the East-Central States.

The sugarcane beetle (Eutheola rugiceps Lec.) was so serious in the Gulf region that in many cases replanting of corn was necessary, and in 1926 it appeared for the first time as a serious corn pest in Illinois.

The grape colaspis (Colaspis brunnea Fab.) was an unusually serious enemy of corn in the East-Central States.

The stalk borer (Papaipema nitela Guen.) was one of the outstanding pests of the year in the region extending from Ohio through Indiana and Illinois, westward to Nebraska and Iowa, and southwestward into Missouri and Kansas.

The alfalfa weevil (Phytonomus posticus Gyll.) has been found in Goshen and Carbon Counties, Wyo., near the Nebraska State Line, and in four additional counties in Colorado.

The joint worm (Harmolita tritici Fitch) was reported for the first time as serious in the Pacific Northwest, an area about 12 miles square in Clackamas and Marion Counties, Ore., being very heavily infested. Inasmuch as stubble from this general region has been examined for the past 8 years in connection with Hessian fly work, this insect is undoubtedly new to this particular region.

The season seems to have favored unusual northern extension of the range of a number of important pests. The sugar-cane beetle and the green bug have been mentioned. The southern corn stalk borer (Diatraea zeacolella Dyar) occurred in serious numbers in a restricted region about Racine, Wis.

The wheat stem sawfly (Cephus pygmaeus L.) infested from 1 to 50 per cent of the wheat throughout southwestern Manitoba and southcentral Alberta, and has caused unusually heavy damage in southern Saskatchewan.

FRUIT INSECTS

One of the most striking features in connection with insects affecting

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deciduous fruit was the remarkably small population of aphids throughout New England and the Middle Atlantic States, and in the Mississippi Valley. In the latter region eggs were very generally less prevalent than usual. In the Southeastern States, on the other hand, the rosy apple aphid (Anuraphis roseus Baker) was unusually abundant. The small population of aphids in the greater part of the deciduous fruit belt continued throughout the season. Reports from the Niagara District of Ontario and the Annapolis Valley in Nova Scotia indicate that the scarcity of these insects also prevailed over those regions.

Reports in the early spring indicated that the codling moth (Carpocapsa pomonella L.) passed the winter in unusually large numbers over the greater part of its range. The only exception was the Pacific Northwest. Later developments show that this pest was more seriously prevalent than in years in parts of the eastern fruit belt, in many cases doing very serious damage even under good spraying practise.

The oriental fruit moth (Laspeyresia molesta Busck) has been less serious than usual over the greater part of its range. In the Georgia peach belt it produced one brood less than in 1925. Larvae of what are believed to be this insect were found at East Lansing, Mich., in the season of 1926. It was also discovered in the Niagara district, Ont., in October, 1925, in peach orchards at St. Davids, Peachland, Vineland Station, and Bartonville, thus indicating either a somewhat general or a patchy infestation extending from Hamilton to the Niagara river. Fortunately, the infestation is at present extremely light.

The European red mite (Paratetranychus pilosus C. & F.) is now known to occur in the Shenandoah Valley, Virginia, this being its southernmost record.

A rather unusual infestation by the boxelder bug (Leptocoris trivittatus Say) has been reported from the State of Washington, the bugs doing considerable damage by puncturing the fruit of apples. This insect has been reported for the first time from North Carolina.

The eastern tent caterpillar (Malacosoma americana Fab.) was generally abundant from the Connecticut River Valley westward to New York State and southward to Virginia; to the north it extended in unusual numbers into parts of southern Quebec and New Brunswick, Canada.

The San Jose scale (Aspidiotus perniciosus Comst.) was in 1926 slightly more prevalent in the New England States than it was a few years ago, whereas the general upward trend noted in New York State and Pennsylvania for the last few years seems to have passed its crest and is receding. In the southeastern States the scale is decidedly more serious than usual, and appears to be on the increase in the East-Central States. Over the rest of its range it appears to be under satisfactory control, and in the Pacific Northwest is subnormal; this latter condition is believed to have been brought about by the severe winter of 1924-25.

The plum curculio (Conotrachelus nenuphar Hbst.) as a whole was less prevalent than usual. Reports of serious damage, however, were received from Indiana and Missouri, and also from sections of southern Quebec and Ontario, Canada.

The cambium curculio (Conotrachelus anaglypticus Say) appeared in one of the most serious insect outbreaks that has ever occurred in the pecan-growing sections of southern Mississippi. The walnut caterpillar (Datana integerrima G. & R.) was much more numerous than usual over the entire eastern pecan section, from Florida to Mississippi.

The citrus aphid situation in Florida has very materially improved. Very slight infestations were observed over the entire region previously so seriously infested. A single serious infestation was reported from Louisiana.

TRUCK CROP INSECTS

The harlequin bug (Murgantia histrionica Hahn) was decidedly more troublesome than usual over the South Atlantic and Gulf region.

The cabbage maggot (Hylemyia brassicae Bouche) was in 1926 generally destructive from Massachusetts through the East-Central States to Wisconsin and Iowa.

The known distribution of the Mexican bean beetle (Epilachna corrupta Muls.) has very materially increased during the past year. It was reported, for the first time in the State of Maryland, in Garrett and Washington Counties. In Virginia the insect has advanced to very nearly the eastern border of the State in Frederick, Page, and Culpeper Counties. In North Carolina it has reached the center of the State in Caswell County, and in Ohio the extension along the lake is now complete. In Indiana it has spread westward to Clinton County, and in Pennsylvania it has been found as far East as Dauphin County, near Harrisburg, and north to Venango County.

The bean aphid (Aphis rumicis L.) developed in unprecedented numbers in the cannery bean sections of Ohio, where it caused considerable losses to growers of lima and string beans.

In southern Utah the beet leafhopper (Eutettix tenella Baker) was epidemic in 1926, and because of curly top the beet crop was practically a failure.

The campaign for the control of the sweet potato weevil in the Gulf region of Mississippi and Alabama has been so successful that where 123 farms in Pearl River County, Miss., were infested in 1923 but one farm was found infested in 1926, and where 62 farms in Baldwin County, Ala., were found infested in 1925, but two showed any infestation this year.

The turnip weevil (Listroderes obliquus Gyll.) was for the first time reported from California, where it was found seriously infesting carrots, spinach, and other garden truck at San Jose. In the eastern area of infestation by this insect the situation has changed but little since last year. The closely related species Listroderes apicalis Waterh. was found for the first time in the State of Mississippi. Up to this year this species has been confined to Louisiana.

The sweet potato beetle (Typhophorus viridicyaneus Cr.) has been reported as damaging sweet potatoes in Walker County, Ga. This insect has

for a number of years been known as infesting the sweet potato, but has not heretofore been recognized as of much importance.

In Mississippi during the past season the sugarcane beetle (Euethela rugiceps Lec.) caused very unusual damage to sweet potatoes, as high as 26 per cent of the tubers in three lots examined by the inspectors being rendered unmarketable.

The coffee bean weevil (Araecerus fasciculatus DeG.) has been found working on sweet potatoes in storage near Foley, Ala.

The pepper weevil (Anthonomus eugenii Cano) is now one of the most important pests in the pepper-growing sections of Orange County, Calif., where losses have run as high as 50 to 65 per cent of the crop. Approximately 8,000 acres of peppers are grown annually in this county.

The spotted asparagus beetle (Crioceris duodecimpunctata L.) was in 1926 collected for the first time in the State of Illinois. It appeared in students' collections, in the fall of 1925, from Lake, Piatt, and Champaign Counties. Inasmuch as very extensive collections have since 1922 been made annually over this same region, this insect is undoubtedly a quite recent arrival. This is the westernmost record for the spotted asparagus beetle, despite the fact that its distribution is usually considered the same as that of Crioceris asparagi.

The Colorado potato beetle (Leptinotarsa decemlineata Say) was generally about normal to subnormal throughout its entire range. This condition also prevailed throughout Canada, with the exception of a small region in southern Quebec and in southern Alberta.

The potato leafhopper (Empoasca mali LeB.) was decidedly more serious than usual in Indiana and Illinois, and in the Niagara district of Ontario.

The pea aphid (Illinoia pisi Kalt.) was very numerous in the cannery pea sections of Maine and southward to eastern Massachusetts; also in the pea-canning sections of western New York and southern Minnesota.

A flight of the painted lady (Vanessa cardui L.), similar to the one reported in 1924, occurred in California this year in March. In April the larvae were troublesome on lettuce and prunes in parts of that State.

COTTON INSECTS

From the moss examinations made it was evident that the initial infestation of the boll weevil (Anthonomus grandis Boh.) in Louisiana would be heavier this year than last, and much heavier in the southern than in the northern part of that State. The Mississippi Valley territory in general was rather heavily stocked with hibernating weevils, the infestation decreasing to the eastward, but with enough weevils present to do serious damage under favorable summer weather conditions. In Texas the weevil population was so reduced over a large part of the State that very abnormal weather would be required to cause serious damage. The emergence of the weevil in the spring was extremely slow in practically the entire cotton belt; as the season advanced

the infestation was generally low in Texas, Oklahoma, and Arkansas, but decidedly heavier than normal in Louisiana. It was more general than usual in Mississippi, though the intensity there was lower than usual. Eastward throughout Alabama and Georgia the infestation was generally low. As the season advanced further the insect developed no serious aspects except in Louisiana, Mississippi, and southern Alabama. Late in the season, however, considerable damage was done to the top crop, but the main crop as a whole was not seriously affected.

The cotton flea hopper (Psallus seriatus Reut.) occasioned very considerable excitement in July in Texas, Oklahoma, Louisiana, and Mississippi, extending eastward to Georgia, South Carolina, and North Carolina. The outbreak, however, was of short duration, and not so serious as anticipated except locally.

The cotton boll worm (Heliothis obsoleta Fab.) was somewhat more troublesome than usual throughout the cotton belt, extending from North Carolina to Texas.

The year 1926 marks one of the unusual advances of the cotton leaf worm (Alabama argillacea Hbn.) into the northern States. Late in May pupae and recently emerged adults were quite numerous in Wharton County, Tex. These continued to multiply during June in south-central Texas. Heavy flights took place from this center in the early part of July, and up to July 6, larvae were appearing in northern Mississippi, Louisiana, and Arkansas. From this new center a brood appeared about September 1 and swept northward, being recorded in Michigan on the 5th, in New York on the 7th, and Massachusetts on the 12th. The moths continued to drift into the upper Mississippi Valley and eastern States in increasing numbers throughout the month. By the middle of September the larvae of this last brood were stripping the cotton in Georgia and South Carolina. In the Ohio River Valley in Indiana and Illinois the moths did considerable damage to peach, grape, apples, and tomatoes. The insect was so numerous in parts of Mississippi that at one point where their march was impeded by a road the stench of their decaying bodies attracted turkey buzzards, and in certain cities and towns in Pennsylvania and Massachusetts the enormous numbers of the moths caused considerable alarm among residents. The most unusual feature of this northern flight was recorded in October, when a brood of larvae from these moths was found on the experimental cotton plots at Arlington Farm, near Washington, D. C., and on cotton plants at Monroe, Mich. This insect has never been recorded heretofore as producing larvae in the northern States.

GREENHOUSE AND ORNAMENTAL PLANTS

Among the insects affecting greenhouse and ornamental plants we may mention the finding of the sawfly Allantus mellipes Norton at Moncton, New Brunswick; and the finding of the lilac leaf miner (Gracilaria syringella Fab.) for the first time at Vancouver, British Columbia.

The rose chafer (Macrodactylus subspinosus Fab.) was generally below normal in population in New England and the Middle Atlantic States, the only report of its occurrence in serious numbers having been received from Nebraska.

FOREST AND SHADE TREE INSECTS

Among the forest and shade-tree insects the bagworm (Thyridopteryx ephemeraeformis Haw.), was quite generally reported from the East-Central and

Southeastern States. The birch leaf miner (Fenusa pumila Klug) again seriously damaged the foliage of birches in southern New York and Connecticut. The hemlock spanworm (Ellopiia fiscellaria Guen.) is still seriously infesting hemlock and balsam fir in Wisconsin.

On the Beaverhead-Bitterroot National Forests in Montana there exists one of the largest epidemics of the mountain pine beetle (Dendroctonus monticola Hopk.) that has ever been recorded. This epidemic has been going on almost continuously since 1909 but until very recently it has been in unmerchantable timber.

A serious outbreak of the Black Hills Beetle (Dendroctonus ponderosae Hopk.) has suddenly come into prominence in the Colorado National Forest, Colo. Approximately 250 square miles are involved. Last year the infestation increased 500 per cent. The epidemic of this beetle in the Kaibab National Forest, Ariz., has completely subsided.

In southern Oregon in the vicinity of Klamath Lakes the western pine beetle (Dendroctonus brevicornis Lec.) has again increased in prominence. Private companies are undertaking control during the present winter and spring.

Brood XVII of the periodical cicada (Tibicina septendecim L.) is one of the problematical broods with but few well-developed colonies reported. It has been reported from Virginia, Georgia, Iowa, Missouri, and New York, but none of the records have ever been confirmed. In 1926 authentically determined specimens were taken from Doniphan County, Kans., about 100 miles north of the nearest previously recorded locality for this brood, in Cass County, Mo. This was the only record of the appearance of this insect in 1926.

INSECTS AFFECTING DOMESTIC ANIMALS

A very severe outbreak of the stable fly (Stomoxys calcitrans L.), believed to have been the most severe since the unprecedented conditions of 1912, occurred throughout the grain belt of northern Texas and southern Oklahoma. During its height dairymen reported a reduction of milk flow of from 5 to 60 per cent, farm work was discontinued, and meat animals were rushed to market on account of loss of weight. As was the case in the earlier severe outbreak mentioned, a large grain crop, with the production of a surplus of straw, followed by wet weather, brought about conditions very favorable for the breeding of flies in straw stacks.

MISCELLANEOUS PESTS

The number of reports being received by the Insect Pest Survey of damage done to buildings and other woodwork by termites has increased every year since the Survey started. This is possibly owing to an increased interest in the damage done by these pests.

Among the newer pests that have come to our attention during the year is one of prunes, a small moth (Mineola scitulella Dyar) reported from Idaho. The scale insect, Lecanium corylii L. has occurred in very serious numbers in the western part of the State of Washington, as has also the satin moth

(Stilpnotia salicis L.). The black vine weevil (Brachyrhinus sulcatus Fab.) has been found for the first time in southern California, and the eggplant leaf miner (Phthorimaea glochinella Zeller) was also recorded from this region for the first time.

In May, 1922, the Insect Pest Survey received a report of the weevil Glyptoscelis squamulata Crotch, damaging grapes in southern Nevada. In 1925 this pest was reported from the Coachella Valley, in California, and in 1926 it was reported as doing damage in the Imperial Valley, the adult beetles eating into the unfolding buds of grapes.

A new scarabaeid beetle (Autoserica castanea Arrow) was recorded for the first time from North America, in the vicinity of greater New York.

One of the most significant developments of 1926 was the extension of territory known to be infested by the Anomala (Anomala orientalis Waterh.), which is now found in the southern part of New York State, on Long Island, and in southern Connecticut.

The Japanese beetle (Popillia japonica Newm.) has extended its range from its original territory in eastern Pennsylvania westward to Harrisburg and northward to Easton. It has also been found in the Hudson River Valley as far north as Ossining, southward to Stamford, Conn., and to Long Island.

